

BIDEMICS Type-S



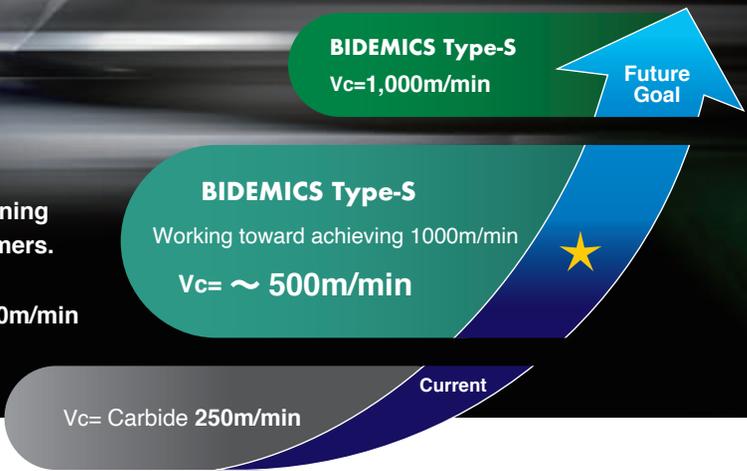
Venture into the unknown
 NTK is looking for a partner to cut a path to the future of machining

NTK challenge for new generation



Our target is to develop a New cutting tool for Steel machining at 1000m/min achieving high production results for customers.

Milestone - NTK's new grade is able to machine at $V_c = 500\text{m/min}$



NTK's goal is to provide VALUE to the customer

- Cost reductions, from higher productivity, to leverage for capital investment
- Reducing the environmental impact by machining DRY (no coolant used)
- Minimize the depletion of resources (Tungsten carbide, Cobalt) and provide stable delivery



Save the earth

Chart of Annual Production Costs

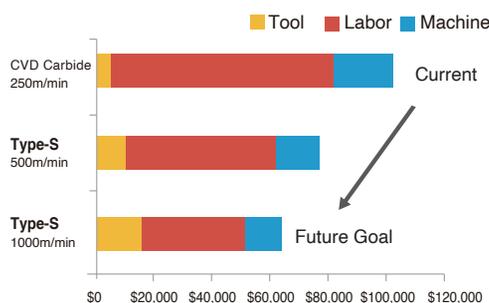
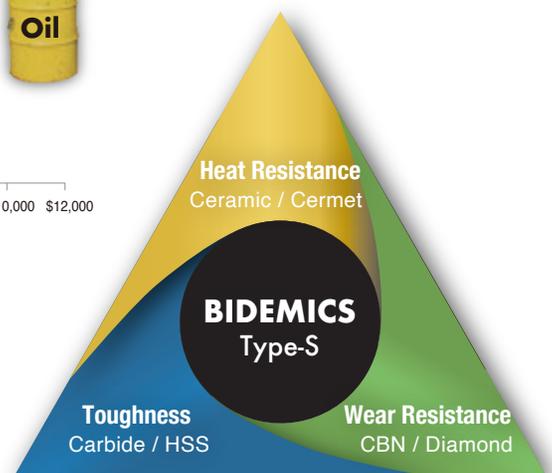


Chart of Annual Coolant Costs

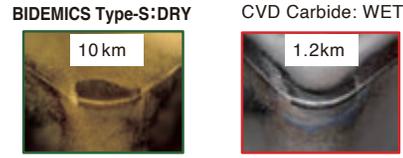
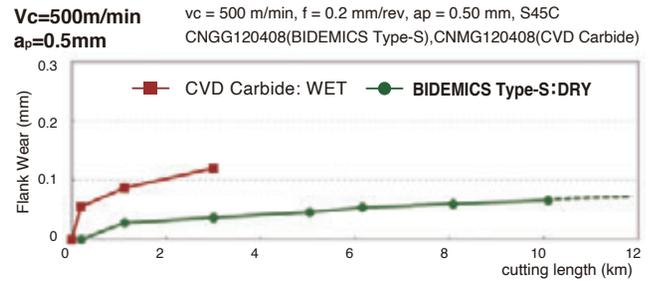
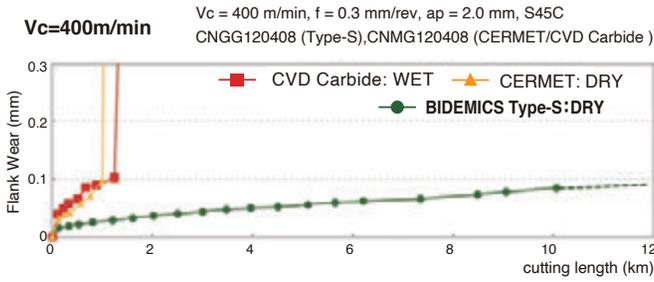


NEW Grade - BIDEMICS Type-S

BIDEMICS Type-S is a newly developed material with superb heat resistance, wear resistance and toughness.

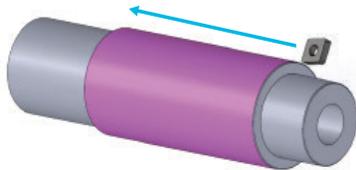


Laboratory Test



BIDEIMICS Type-S achieves superior wear resistance at cutting high speeds vs. CVD Carbides or Cermets.

Customer Test Result



Shaft

Work material : C45 (carbon material)
 Mahicing part : $\phi 63 \times 143$
 Depth of cut : 2.0mm
 CNGG120408

BIDEIMICS Type-S achieves longer tool life resulting in higher productivity.

	BIDEIMICS Type-S	CVD carbide	CVD carbide
Cutting speed(m/min)	400	400	250
Feed rate (mm/rev)	0.3	0.3	0.3
C/T (sec/pcs)	14sec 	14sec 	23sec
Tool life(pcs)	Over 108 pcs. 	Breakage (16pcs) 	Burr (72pcs)
Cutting edge at end of tool life			

Test Sample

Shape	Insert number	Corner radius	Dimension (mm)	Application			With coolant	
				Continuous	Light interruption	Interruption	DRY	WET
	CNGG120408	0.8	$V_c = 400 \sim 500 \text{ m/min}$ $f = \sim 0.3 \text{ mm/rev}$ $a_p = \sim 2.0 \text{ mm}$	●	×	×	●	×
	CNGG120412	1.2		●	×	×	●	×
	TNGG160404	0.4		●	×	×	●	×
	DNGG150408	0.8		●	×	×	●	×
	DNGG150608	0.8		●	×	×	●	×

Image of chipbreaker

Design and specifications are subject to change without notice.



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Important Testing Safety Information

⚠ CAUTION

Checklist before test is conducted: (all items must be checked)

- Machine has functioning door or shield to protect individuals from chips
- Oil based coolant is NEVER used in the machine designated for the test (to prevent a potential fire hazard)
- No Coolant during cutting -Dry cutting test condition only (wet machine conditions are acceptable only if it is a water-based coolant)
- Continuous cutting conditions ONLY for the test (Interrupted cutting will result in breakage)

⚠ Checklist for the test

- Begin spindle rotation with the customers current cutting conditions, then gradually increase spindle speed to the 1300 - 1650 SFM (400 - 500 m/min) while checking that there is no issue such as: machine vibration, work piece deflection, etc. that may compromise safety or the machining of the part. CAUTION must be taken when the workpiece is not held by the center chuck. The workpiece may come loose at the high rotation speeds; especially if it is long or a unique shape.
 - Before the test, examine toolholder and clamp system to ensure there is no damage that may compromise safety or performance of the product.
 - Please do not run the test if there are any concerns with the conditions of the machine and test environment
 - Please be prepared for an emergency stop and evacuation of the area if any issues occur during machining
 - * The decision to run the test is to be decided by the customer
- Please also refer to the attached sheet "Metalcutting Safety".